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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,902	05/27/2005	Jean-Michel Rius	Q87929	4716

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER
MILLER, JR, JOSEPH ALBERT

ART UNIT	PAPER NUMBER
1792	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/536,902	RIUS ET AL.	
	Examiner	Art Unit	
	JOSEPH MILLER JR	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 9-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 9-12* is/are rejected.

7)☒ Claim(s) *8, 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/12/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/12/2009 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "cavity". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Laurent (WO99/17334).

Laurent teaches a method for treating at least one face (the inside surface) of a bottle in a PECVD process where microwaves (UHF waves) are used and a coupling mode is generated (abstract). A plasma-excited precursor gas is used (pg 2, lines 15-20). A cylindrical microwave confinement is used within a chamber; the coupling mode generated is a TM mode without axial components (pg 3, lines 12-15) (therefore coaxial to the produced fields). Laurent teaches an embodiment where the method may be used with multiple containers which may be arranged in a "matrix"; in the application for multiple containers, multiple microwave confinements may be contained within one chamber (pg 3, line 30- pg 4, line 4).

Regarding instant claim limitations:

Providing: Laurent teaches providing a vacuum chamber (pg 3, lines for treating a plurality of bottles (pg 4, lines 24-26);

Placing: a bottle (bottles) may be place in the chamber (pg 9, lines 23-25);

Supplying and exciting: process gas is fed and the microwave generator is activated (pg. 10, lines 1-3);

Sizing: Regarding the claim limitation that the chamber is sized such that a coupling mode is generated that creates several electromagnetic fields inside the

chamber, Laurent teaches that "the microwave confinement, the coupling means, and the microwave generator are **designed** and tuned that the microwave confinement is excited in a TM resonant mode", thereby teaching the sizing of the confinement, which is linked to the chamber size (pg 3, lines 13-18), such that an electromagnetic field is generated. Since each container is in a microwave confinement, when applying the method to multiple containers, it would be inherent that multiple electromagnetic fields are in fact generated - since there are multiple microwave enclosures and a generated coupling mode (claim does not require "one single instance of a TM mode" generation to treat more than one container).

The "wherein each container" is discussed cumulatively in the points addressed above concerning deposition on multiple containers, coaxial and plural fields. It is understood in the reference that the multiple containers are treated simultaneously.

Regarding claim 10, Laurent teaches that the "one-bottle apparatuses are connected to a net of energy…" (pg 4, top) – therefore the electromagnetic waves are supplied from a "single source", wherein the single source is the "net of energy".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laurent (WO99/17334) in view of Moore (PCT/EP00/12770, 2003/0097986 used as translation).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laurent (WO99/17334) as applied to claim 9 above, and in further view of Moore (PCT/EP00/12770, 2003/0097986 used as translation).

Laurent teaches a method for treating at least one face (the inside surface) of a bottle in a PECVD process where microwaves (UHF waves) are used and a coupling mode is generated (abstract). A plasma-excited precursor gas is used (pg 2, lines 15-20). A cylindrical microwave confinement is used within a chamber; the coupling mode generated is a TM mode without axial components (pg 3, lines 12-15) (therefore coaxial to the produced fields).

Laurent teaches an embodiment where the method may be used with multiple containers which may be arranged in a "matrix"; in the application for multiple containers, multiple microwave confinements may be contained within one chamber (pg 3, line 30- pg 4, line 4).

Regarding the claim limitation that the chamber is sized such that a coupling mode is generated that creates several electromagnetic fields inside the chamber, Laurent teaches that "the microwave confinement, the coupling means, and the microwave generator are **designed** and tuned that the microwave confinement is excited in a TM resonant mode", thereby teaching the sizing of the confinement, which is linked to the chamber size (pg 3, lines 13-18), such that an electromagnetic field is

generated. Since each container is in a microwave confinement, when applying the method to multiple containers, it would be inherent that multiple electromagnetic fields are in fact generated.

Laurent teaches all aspects of the invention except for the use of a circular vacuum chamber.

Moore teaches a process for coupling microwave energy into a circular vacuum chamber (abstract, Figure 2).

It would have been obvious to someone of ordinary skill in the art at the time of the invention to apply the use of a circular vacuum chamber, as taught by Moore as it would allow more of the chamber to be “taken over" by the substrate (Laurent, pg 3, lines 16-17) when the substrate is cylindrical, such as in the case of a bottle. Furthermore, when using the method for multiple substrates, a greater number of cylinder microwave confinements could be included in an overall chamber area that is minimized, compared to another shaped area. The definition of the arrangement of the confinements in a “matrix” allows for any distribution of the confinements. More circular per area could fit into a given circular space without additional unused area; the desire to minimize space when implementing a vacuum is well known in the art.

For further clarification, the chamber is circular as taught by Laurent in view of Moore. There is only one circular chamber; within the circular chamber, there are multiple microwave confinements.

Instant claim does not particularly limit the composition of the circular chamber.

Regarding the claim limitation requiring the electromagnetic waves to be supplied through a window of a side wall of said chamber, Laurent teaches that the generated waves are coupled “through one of the faces”. Though not specifically teaching through a window of a side wall, such a window would be obvious to one of ordinary skill in the art as an option of a "face" of the chamber. Any portal through which the waves are supplied would inherently be considered a “window”.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laurent (WO99/17334) in view of Moore (PCT/EP00/12770; 2003/0097986) as applied to claim 1 above and in further view of Schmidt (2001/0011654).

The teachings of Laurent and Laurent in view of Moore are described above.

Laurent in view of Moore teach all aspects of the instant claims except the requirement that a TM 120 coupling mode is established.

Schmidt teaches a process for the application of microwaves to coated substrates (abstract). Schmidt teaches that the dimensions of a cavity may be varied to produce various resonant modes, including TM 120.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the use of the TM 120 in the microwave process as taught by Schmidt to the microwave plasma deposition process taught by Laurent in view of Moore as one could modify the size of the chamber with a reasonable expectation of producing a TM

120 resonant mode based on Schmidt's successful use of a TM 120 resonant mode to produce microwaves.

Laurent teaches the application to any number of substrates, when applying his method to two substrates (which would be obvious under "a plurality") it would be obvious to size and shape the chamber to produce a TM 120 mode, As Laurent is concerned with generating a TM mode.

Limitations regarding a circular chamber are addressed above. Applying the invention to any particular number of substrates in the chamber would be obvious.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laurent (WO99/17334).

Regarding the claim limitation requiring the electromagnetic waves to be supplied through a window of a side wall of said chamber, Laurent teaches that the generated waves are coupled "through one of the faces". Though not specifically teaching through a window of a side wall, such a window would be obvious to one of ordinary skill in the art as an option of a "face" of the chamber. Any portal through which the waves are supplied would inherently be considered a "window".

Allowable Subject Matter

Claims 8 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Though the prior art suggests the use of TM modes, including TM 120 and the sizing of chambers for the deposition of films on substrates, it does not specifically teach or make obvious the claimed combination of frequency, chamber size and coupling mode as in instant claims.

Response to Arguments

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's made a rejection by the Japanese patent office and the related reference used in that rejection a matter of record in the recent IDS dated 06/12/2009. Examiner would like to further add the response by applicants to the original rejection by the Japanese patent office to the record (Applicant's arguments over JP rejection.pdf) and explain office's reasoning for not making a similar rejection (which would potentially have been a 112 Enablement rejection).

In this case, Examiner is not convinced based upon the prior art used by the Japanese office that it is a more reliable source than the combination of the applicant's specification and the previously cited prior art, Risman US Patent 5,834,744. The applicant's arguments are persuasive in that it appears waves would be generated in the manner described by applicants, and apparently supported in a granted US Patent.

Applicants argue that claims are allowable because the prior art does not disclose the amended claim 1 or newly added claim 9, however, arguments are not persuasive.

It was pointed out in the last advisory action that the chamber is "sized" as taught by Laurent, and UHF waves result in a TM mode. Because multiple microwave enclosures are taught, multiple waves are resulting from the configuration and sizing of the chamber.

In case clarification is needed, it is the examiner's position that multiple microwave enclosures existing in a single (circular) chamber taught by the references teaches multiple waves; the microwave enclosures each have their "own" wave. As noted, coupling mode is generated and this is necessarily related to the microwaves.

Instant claim 9 may be read such that there are multiple electromagnetic fields in the vacuum chamber and a couple mode, the particular mode does not necessarily *cause* the multiple fields.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH MILLER JR whose telephone number is (571)270-5825. The examiner can normally be reached on Mon – Fri, 8am -4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/JOSEPH MILLER JR/
Examiner, Art Unit 1792

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit 1792